Listing of Claims

This listing of claims will replace all prior versions and listing of the claims in the application:

Claim 1 (Currently amended) A DNA construct ~~containing~~ encoding a genome of an infectious clone of ~~an RNA virus containing~~ a viral RNA-based expression vector, the genome comprising a hairpin, the hairpin being comprised of a first hairpin sequence fragment and a second hairpin sequence fragment:

a) the first hairpin sequence fragment corresponding to a gene encoded within the nucleus of ~~the~~ a target plant host, said hairpin ~~sequence being a~~ sequence fragment ~~of~~ being greater than ~~20 bp~~ 10 bases in length ~~where the sequence fragment~~ and in the sense orientation; and

b) the second hairpin sequence fragment following the first hairpin sequence fragment, ~~followed by different sequence fragment,~~ derived from the first hairpin sequence fragment and in the reverse complement orientation; ~~, with: no intervening sequence; or~~ wherein if an intervening sequence is present, then the intervening sequence is of no greater length than the collective length of the two sequence fragments comprising the hairpin.

Claim 2. (Currently amended) A process of producing cytoplasmic inhibition of nuclear gene expression in a target plant host resulting from hairpin RNA expression from an RNA virus genome ~~in~~ by infecting the cytoplasm of the target plant host with an infectious clone of a viral RNA-based expression vector in accordance with claim 1.

Claim 3. (Withdrawn) A plant host experiencing cytoplasmic inhibition of gene expression following infection with an RNA virus genome containing a hairpin nucleotide sequence in accordance with claim 1.

Claim 4. (Withdrawn) An animal host experiencing cytoplasmic inhibition of gene expression following infection with an RNA virus genome containing a hairpin nucleotide sequence in accordance with claim 1.

Claim 5. (Currently amended) A method for determining nuclear gene function through a process of producing cytoplasmic inhibition of nuclear gene expression in a plant host ~~following infection~~ comprising:
infecting the plant host with an RNA virus genome of an infectious clone of a viral RNA-based expression vector comprised of a hairpin nucleotide sequence in accordance with claim 1; and
observing differences between the infected plant host and an uninfected control plant host.

Claim 6. (Currently amended) A hairpin viral RNA-based expression ~~sequence~~ vector in accordance with claim 1 comprising a tobacco mosaic virus.

Claim 7. (Currently amended) A hairpin viral RNA-based expression ~~sequence~~ vector in accordance with claim 1 comprising a barley stripe[d] mosaic virus genome.

Claim 8. (Currently amended) A viral RNA-based expression vector or genome of a viral RNA-based expression vector in accordance with claim 1 for producing cytoplasmic inhibition of nuclear gene expression in a target plant host ~~gene silencing applications,~~ comprising a ~~very short, yet highly active gene silencing inducer, such as said~~ hairpin sequence of about 40-60 bp~~, wherein said virus vector exhibits improved genetic stability~~.

Claim 9. (Currently amended) A viral RNA-based expression vector as specified in claim 1 that contains a 20-30 nucleotide hairpin sequence for infection of

~~mammalian~~ plant cells and delivery of a hairpin RNA sequence to the cytosol for cytoplasmic gene inhibition.

Claim 10. (Currently amended) A viral RNA-based expression vector as specified in claim 9, derived from the ~~alphavirus, rubivirus~~ viruses that infect monocotyledonous plants and virus that infect dicotyledonous plants ~~families~~.